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Data-Driven Modeling of Human Behavior in Military Operations

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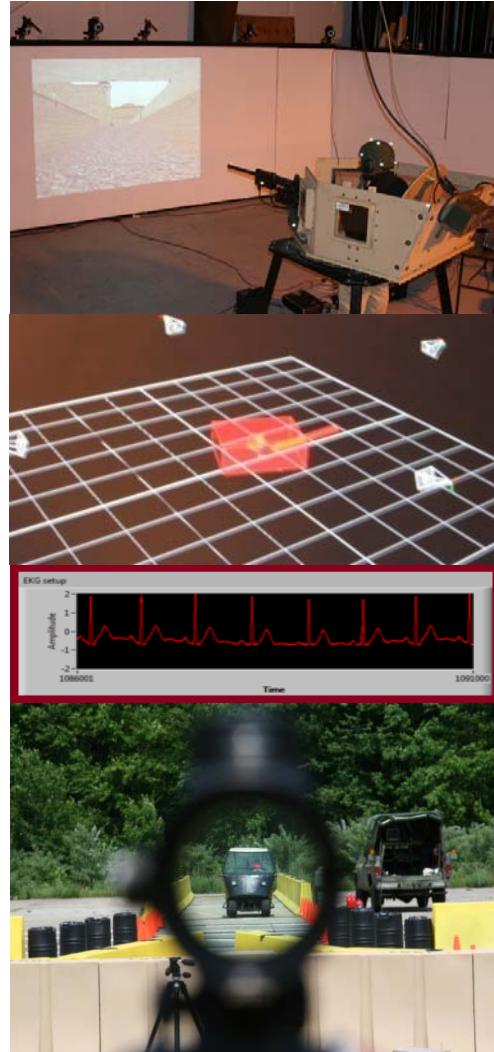
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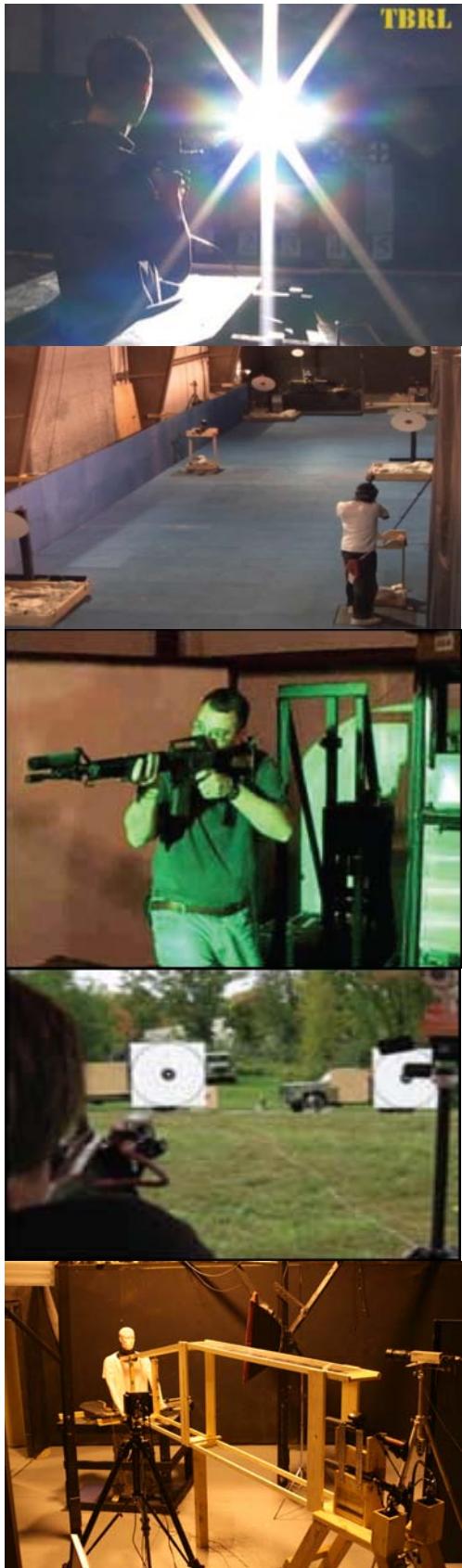
ABSTRACT: *This paper describes the work at the Target Behavioral Response Laboratory to develop data-based general approaches to modeling and simulation of human behavior.*

1. Introduction

The current theaters of operation have sharpened focus on analytics relevant to irregular warfare (National Research Council, 2011). A critical tool for operations research and systems analysts is the modeling and simulation of tactically relevant human behavior. There are several specific criticisms of the current state of the art. Most critically, there is recognition of the lack of real-life data to provide guidance for these M&S efforts. Moreover, also lacking are methods to assess how well these M&S efforts relate to actual real life human behaviors. One might propose that the lack of data on human behavior is caused by a lack of M&S researchers who are studying human behavior.

The Target Behavioral Response Laboratory (TBRL) is one such collection of scientists and engineers. TBRL's primary mission is to test the effectiveness of non-lethal weapons and systems, and has conducted experiments examining human behavioral response to a variety of stimuli relevant to non-lethal weapons (light, sound, blunt impact) (Cooke, Mezzacappa, Yagrich, & Riedener, 2010; Cooke et al, 2010; Mezzacappa, Cooke, & Yagrich, 2008; Short Riedener, & Cooke, 2010; Short Riedener, Cooke, & Minor 2010) and developed general methodologies by which data on actual human behavior in the laboratory serves as a basis for development of mathematical models describing human behavior (Mezzacappa, Cooke, Reid, DeMarco, Sheridan & Riedener, 2011). This presentation proposes facilitating close end-to-end collaborations between the laboratory and modeling researchers.





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